- preference in purchasing items that include recycled content,
- procedures for using recycled paper,
- authorization to conduct recycling audits in county agencies, and
- establishment of employee and business advisory recycling committees.

The county administers recycling policy through County Code, Chapter 109.

Electronics and Computers Recycling

Electronics waste is projected to grow significantly in Fairfax County.

The television and personal computer's rapid rate of obsolescence and environmentally unfriendly elements (including lead, mercury, and cadmium) make refurbishing, recycling, and disposal issues important. Fairfax County is developing electronics and computers recycling practices and policies to reduce the volume of these products requiring disposal.

Projected growth and obsolescence rates of various categories of consumer electronics indicate an average of 400 million units scrapped per year in the United States.[1] Included in these estimates are approximately 20 million televisions and 30 million computers per year. Using national per capita average rates, Fairfax County will likely generate roughly 70,000 obsolete televisions and 105,000 obsolete computers per year.

The low cost of new electronics and computers coupled with stringent purchasing requirements have reduced the demand for refurbished and resold equipment. Scrapping and recycling are emerging as viable methods for managing old electronics and computers. The Mid-Atlantic Consortium of Recycling and Economic Officials estimates that scrapping a computer generates revenue of $34.26 per machine and a cost of $1 to $10 for disposal of monitors in bulk.[2]

Fairfax County currently promotes electronics recycling through the Keep it Green "E-Waste" Program.

Fairfax County currently supports electronics recycling through the Keep It Green "E-Waste" Program. The program is a partnership between Service Source, Computer Donation Management, and

[1] International Association of Electronics Recyclers (IAER), *IAER Electronics Industry Report*, 2003.
[2] Northern Virginia Planning District Commission, *The Northern Virginia Recycling Market Development Project*, January 7, 2000.

Fairfax County. As of 2004, Keep It Green has recycled over 215 tons of electronics waste, providing convenient and environmentally responsible ways for Fairfax County businesses and citizens to recycle obsolete electronic equipment, while offering valued employment for people with disabilities.

Planned county programs will support initiatives to recycle electronics and computers, helping to eliminate these items from the waste stream. In addition to removing these items from the waste stream, recycling electronics and computers will help Fairfax County comply with the proposed EPA rule requiring recycling of cathode ray tubes, which are found in computer monitors, and televisions. Although the rule is still pending, it would further advance the county in its efforts to create a new market for recyclables. Fairfax County recently updated its policy to promote economically and environmentally sustainable recycling of electronics.

Public Outreach and Education - Recycling

Fairfax County promotes recycling through its public outreach and education efforts, which include presentations at county events, press releases, the Recycling Ambassadors program, the Fairfax County website, the Fairfax Business Recycling Awards, and outreach partnerships with the Metropolitan Washington Council of Governments (MWCOG) and Fairfax County Public Schools:

Fairfax County provides opportunities for citizens to learn about recycling by staffing booths at public events.

- *Presentations at County Events*. Fairfax County provides opportunities for citizens to learn about recycling by staffing booths at public events. During 2003, the county staffed recycling booths at Celebrate Fairfax, Fall for Fairfax, Huntington Days, Providence District Environmental Festival, Mount Vernon District Town Meeting, Earth Day/Arbor Day and Earth Day at the Pentagon. The Fairfax County solid waste program booth was awarded the 2002 Best of Show award and 2003 Best Content award at Celebrate Fairfax, which draws over 100,000 attendees yearly.

- *Press Releases*. The county sends press releases each month on recycling efforts to local newspapers. In 2002, the Washington Post published more than 15 articles on recycling in Fairfax County in its Fairfax Weekly section.

- *Recycling Ambassadors*. In 2003, Fairfax County launched a recycling volunteer program–the Recycling Ambassadors. The Division of Solid Waste Collection and Recycling (DSWCR) recruited 12 Ambassadors for the pilot program through solicitations to local homeowner's associations. The Ambassadors' role is to promote recycling in their communities, such as providing inserts in neighborhood newsletters and sponsoring of local events.

- *Fairfax Business Recycling Awards*. To encourage increased commercial recycling, DSWCR created the Fairfax Business Recycling Awards. The county awards businesses and schools on recycling successes; winning businesses are featured on the county website and invited to join the county's Solid Waste Business Advisory Committee.

Fairfax County's website provides information on residential and commercial recycling and buying recycled content products.

- *Fairfax County Website.* The county maintains a website–www.fairfaxcounty.gov/dpwes/trash/recyclingtrash.htm–which provides information on residential and commercial recycling and buying recycled content products. The website also provides electronic versions of most county recycling publications and a virtual tour of a MRF.

- *Outreach Partnerships with MWCOG.* Fairfax County recently collaborated with the MWCOG to support a regional recycling radio campaign. The campaign promoted recycling in the Washington DC area over seven local radio stations during a two-week period. The county also worked with MWCOG to promote the America Recycles Day Campaign. To show their support for this important effort, the Fairfax County Board of Supervisors proclaimed November 15th, 2003 as America Recycles Day. The county distributed over 90,000 America Recycles Day pledge cards through county schools, libraries and recreation centers.

- *Outreach Partnerships with Fairfax County Public Schools.* The county established a partnership with the Fairfax County Public Schools for the Schools/ County Recycling Action Program (SCRAP) to further environmental and recycling education efforts within public schools. Fairfax County also provides a grant

program, the Johnie Forte Jr. Litter/Recycling Grant Program, to fund recycling programs in the schools.

Recycling Markets

Economics is at the core of all recycling collection decisions.

Economics is at the core of all recycling collection decisions. Recycling plans must focus on the costs and benefits of current, new, and future programs. Although recycling specific material may benefit the environment, the economic cost is sometimes an obstacle for a municipality, which has little chance of affecting the markets for these materials. Therefore, focusing on materials for which strong markets already exist is critical.

Economic viability of recycling is based on:

1. **Disposal cost savings**
2. **Material revenue**
3. **Recyclable Transport Costs**
4. **Recyclable Processing Costs.**

The economic viability of recycling is based on four factors: (1) the cost savings from eliminating disposal, (2) the revenue from selling recyclable materials, (3) the cost of transporting recyclable materials, and (4) the cost of processing recyclables. The economic viability of recycling may increase with higher alternative disposal costs, stronger local markets for recyclable materials, shorter transportation distances to markets, and more efficient processing of recyclables.

Appendix E contains September 2003, rates paid for recyclables in the local market and nationally. Revenue from sale of recyclable material offsets the costs to collect the materials.

Market Development

Four key factors drive the supply, demand, and pricing of Fairfax County's recyclable markets:[3]

1. *Virgin capacities and recycled capacities*. Prices and availability of recycled materials mirror changes in prices and availability of virgin commodities.

2. *Geography*. The viability of Fairfax County recyclable markets varies on the basis of local manufacturer demand.

3. *Transportation costs*. The distance to market is a significant factor in the pricing of commodities.

4. *End product demand*. Recyclable material markets are driven by the demand for the end-products manufactured from the recyclable materials.

[3] Michael Fickes, "Calculating Recycling Markets," *Waste Age*, December 1, 1997.

Needs
Development needs of the wider economic recycling market include:

- greater diversification of recyclables end-uses to increase the demand for recyclables and make recycling more economically viable for counties like Fairfax;
- research and development funding for investigating new and improved methods of recycling and recyclables materials reuse; and,
- improvement in the communication between recyclable collectors and end-users.

Potential Barriers
Potential barriers to recycling include:

- cheap landfill disposal costs in rural Virginia;
- public opposition (*NIMBY* - not in my backyard) to the siting of recycling facilities;
- the perception of some procurement officials that recycled products are lower in quality than virgin products;
- funding constraints for recycling programs;
- the marginal cost of recycling may increase with higher recycling rates;
- transportation costs, because few manufacturers are located in Fairfax County and end-users of some recyclables materials are too distant for economical transport of recyclables to them; and,
- undeveloped (or underdeveloped) markets for some recyclables, which may emerge if end-products satisfy consumer demand.

Assessment of Current and Future Recycling Needs

As discussed, the economic viability of recycling depends on a number of factors, including the prices for recyclable materials. Fairfax County does not have the market size necessary to affect the national market for recyclables. Although a Fairfax County “buy recycled” campaign may help the development of local markets somewhat, market development occurs at the national level.

Chapter 2 of this SWMP presents the projected quantities of MSW generated, recycled, and disposed in Fairfax County over the SWMP

planning period. The county developed four alternative MSW projections to address the probable range of variance in the future generation rates.

Fairfax County projects annual MSW recycling volumes (excluding yard waste and special wastes) will increase between 32 and 72 percent from 2004 to 2025, *assuming continuation of current waste management practices.*

As discussed in Chapter 2, the MSW projections assume the recycling rate will remain at the current rate (32 percent) until 2010, increase to 33.5 percent in 2010, and remain at 35 percent in 2015 and beyond**.** Table 6-6 and Figure 6-1 show the projected quantities of MSW recycled in the county over the SWMP planning period for the four projection alternatives. ***(Note that these projections assume the continuation of the county's current management practices and conditions.)*** These MSW recycling projections do not include yard waste and special wastes; the county evaluated the management for yard waste and special wastes separately in this SWMP. Fairfax County projects annual recycling volumes to increase between 32 and 72 percent from 2004 to 2025.

Table 6-6. MSW Recycling Projections (Excluding Yard Waste and Special Wastes) in Fairfax County, 2004–2025 (in thousands of tons)

	MSW Recycled (Excluding Yard Waste and Special Wastes)			
Year	Alternative 1	Alternative 2	Alternative 3	Alternative 4
2004	256	262	265	271
2005	260	269	269	278
2010	297	323	312	339
2015	326	375	344	395
2020	333	403	356	430
2025	337	429	366	466

Figure 6-1. MSW Recycling Projections (Excluding Yard Waste and Special Wastes) in Fairfax County 2004–2025 (in thousands of tons)